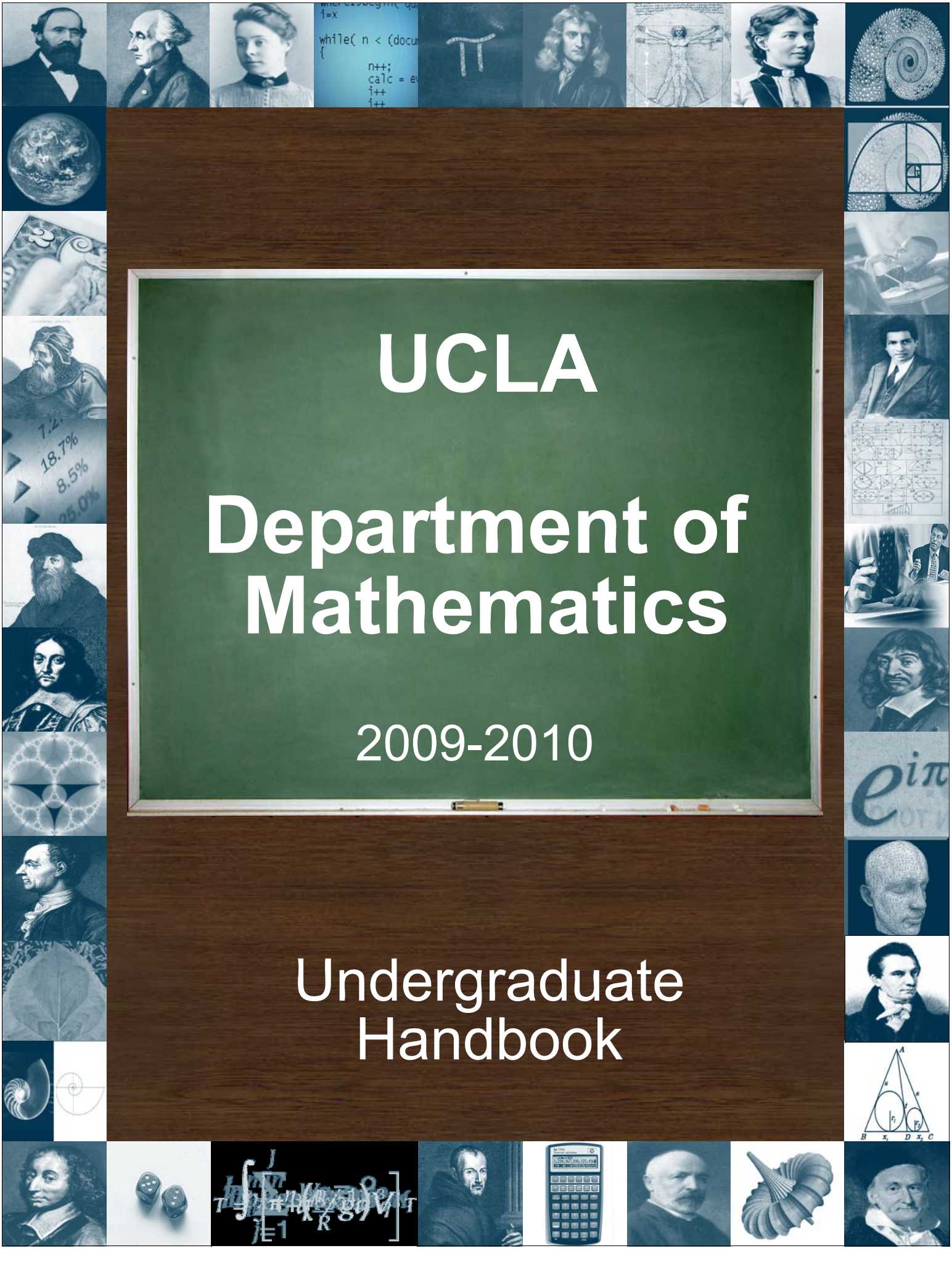


UCLA

Department of Mathematics

2009-2010

Undergraduate Handbook

STUDENT SERVICES

Student Services Office
6356 Math Sciences Building
(310) 206-1286

Undergraduate Advisor:
Connie Jung
connie@math.ucla.edu

Hours of Operation:
Monday-Friday
8:00 a.m. – 12:00 p.m.
1:00 p.m. – 4:30 p.m.

Website:
www.math.ucla.edu/undergrad

Email:
ugrad@math.ucla.edu

Mailing Address:
UCLA Department of Mathematics
520 Portola Plaza
Box 951555
Los Angeles, CA 90095-1555

The Student Services Office is open to answer your questions regarding:

- Academic Difficulty
- Course Planning
- Career Planning
- Course Transfers
- Departmental Programs
- Enrollment Concerns
- Majors and Specializations
- Student Organizations

Academic Advising Schedule:

Week 0-1
Drop-in Advising
M-F 9:00-11:30 a.m. &
1:00-4:00 p.m.
(priority given to enrollment issues)

Weeks 2 -10
Drop-in Advising *

Finals Week
Drop-in Advising*

*Drop-in times vary. Please contact the office at (310) 206-1286 or stop by MS 6356 for actual hours.

FREQUENTLY ASKED QUESTIONS

1. If I took an AP Calculus Exam, what Math course should I enroll in at UCLA?

Only students that receive a score of 3, 4 or 5 on the AP Calculus AB or BC Exams will receive college credit as indicated in the following chart:

UCLA Course Credit for AP Calculus Test:		
Score	**AB Exam**	**BC Exam**
5	Credit for Math 31A **(Enroll in Math 31B/3B)**	Credit for Math 31A, 31B **(Enroll in Math 32A/3C)**
4	Credit for 4 units of calculus	Credit for Math 31A and 4 units of Calculus **(Enroll in Math 31B/3B)**
3	Credit for 4 units of calculus	Credit for 8 units of Calculus
2	No college credit	No college credit
1	No college credit	No college credit

2. Do I need to take the Math Diagnostic Test?

All students wishing to enroll in Math 1, Math 3A or Math 31A are required to take the Math Diagnostic Test. Please contact the Student Services Office if you are not sure whether you need to take the exam.

3. Can I retake the Math Diagnostic Test? How often is the test offered?

Yes. Students can retake the exam as many times as they would like. The most recent score will be counted, even if it is higher or lower than the previous score. The test is offered at every Freshman Orientation Session during the summer and once during the fall and winter quarters. Please refer to our website at http://www.math.ucla.edu/ugrad/diagnostic.shtml for specific exam times and locations.

4. What if a math course I planned to take is full during my enrollment appointment time?

If there are any open sections of that course offered at a different time, it is best to try to rearrange your schedule and enroll in the open section. Otherwise, you should add yourself to the waitlist. If both the course and waitlist are full, you can continue to check the enrollment numbers and try to add yourself to the waitlist if a space becomes available. If you are not enrolled in the class by the first day of instruction, you can stop by MS 6356 or email ugrad@math.ucla.edu for more information. It is always a good idea to have a back-up plan, as enrollment in any course is not guaranteed and you may have to take the course the next time it is offered.

5. Can I take a "Prep for the Major" or "Major" course Pass/No Pass?

No. All courses that are required for the Major, Minor, or Specialization in Computing must be taken for a letter grade.

6. Will I receive credit for both a math course and the honors version of that course (eg. Math 115A and Math 115AH)?

No. Students will only receive credit for either the regular course or the honors version of that course. Taking both courses will result in a credit deduction.

FREQUENTLY ASKED QUESTIONS

7. Can I take a "Prep for the Major" or "Major" course Pass/No Pass?

No. All courses that are required for the Major, Minor, or Specialization in Computing must be taken for a letter grade.

8. How and When may I drop a course?

For non-impacted courses only:

By Friday of 2nd Week:	Via URSA; No fee, no transcript notation.
By Friday of 4th Week:	Via URSA; $5 fee, no transcript notation.
By Friday of 7th Week:	Via URSA, $20 fee, transcript notation.
By Friday of 10th Week:	Instructor's signature required. Forms available in A-316 Murphy. $35 fee and transcript notation.

Warning: If you are on financial aid and plan to drop a course, it is important that you first go to the Financial Aid Office to find out the consequences of your actions.

9. Can I take courses for my major at another school?

Yes. If you would like to complete some "Preparation for the Major" or "Major" courses during the summer at a community college, four-year university, or at another UC campus, you may do so. However, you must verify course equivalencies with a math advisor prior to completing the course. Also, please check with a Letters and Science Counselor in A-316 Murphy Hall regarding residency requirements and other rules/regulations for taking courses at another school.

Upon completion of the course, have an official transcript sent to UCLA Undergraduate Admissions and Relations with Schools, 1147 Murphy Hall, Box 951436, Los Angeles, CA 90095-1436. You must also fill out a Transfer Credit Evaluation Request form in order to have the course evaluated and credited to your record.

10. Who should I go to regarding my GE or university requirements?

Questions regarding university or college requirements should be directed to your designated college counseling office (College of Letters and Science, Honors, AAP or Athletics). You can also refer to the College of Letters and Science website at http://www.college.ucla.edu/up/counseling/artagree.htm.

11. How may I find out my grade in a course?

Please check online at: http://www.ursa.ucla.edu or on your personal My.UCLA page.

12. Will the grade for a course taken at another institution transfer to UCLA?

Only grades from other UC campuses (not a UC Extension program) will be computed into your UCLA GPA. UCLA Extension courses with XLC (Concurrent Enrollment) count as UC courses and the grades do transfer.

13. How do I add the Specialization in Computing?

If you are in any of the math majors (except Math of Computation), you can submit a petition to MS 6356 upon completion of PIC 10B with a grade of "C-" or better. If at any time you wish to drop the specialization, you must submit a petition requesting that it be removed in MS 6356.

FREQUENTLY ASKED QUESTIONS

14. If I received a C- in my Math 31A class, may I continue on to Math 31B and retake Math 31A at a later quarter?

NO. If the course you are planning to repeat is a prerequisite of the more advanced course, then you must repeat the prerequisite course prior to enrolling in the next course. For example, a student wishing to retake 31A should do so prior to enrolling in 31B.

15. If I want to study abroad, how can I find out if the math courses I plan on taking will count towards my major?

Students should consult with the math advisor only after they have met with EAP and know which math courses they are considering. Be sure to bring any program information and course descriptions/outlines when you meet with the advisor.

16. Where may I petition to change or declare my major?

After you have completed 12 units of math at UCLA, received a "C" or better in Math 115A, and have a GPA of 2.0 or better, you may go to MS 6356 to request to change or declare one of the math majors. For double majors, please start by meeting with the math advisor in MS 6356. If you are looking to switch to a different major outside of the Math Department, please consult with the advisor for that specific department.

17. How can I find a tutor?

The following are some of the most frequently used tutoring services on campus:

The Student Math Center offers individual and group homework assistance for lower division math courses. The center is located in MS 3974. Hours of operation are available at http://www.math.ucla.edu/ugrad/smc.shtml.

College Math /Sciences Tutorials is located in 230 Covel Commons and is open to all registered UCLA undergraduate students that need assistance with lower division Math and Sciences courses. All tutors are current UCLA students. For more information, refer to their website at http://www.college.ucla.edu/up/ct/math_sci.htm.

Engineering and Mathematical Sciences Library (EMS) is located in 8270 Boelter Hall and offers various academic resources to current UCLA students. For more information, visit their website at http://www.library.ucla.edu/libraries/sel/.

Private (Fee Based) Tutoring is available from current graduate students in the Math Department. Please refer to our website at www.math.ucla.edu/people/tutors/ for a list of tutors available. For price rates, please contact each individual tutor.

CREDIT LIMITATIONS

Credit is given for only one course in each of the following groups:

- Mathematics 3A, 31A
- Mathematics 3B, 31B
- Mathematics #, #H,
- Mathematics 3C, 32A
- Mathematics 110A, 117

Courses from only one of the following Statistics sequences may be applied toward any mathematics major, unless the major states a specific sequence:

- Statistics 100A, Statistics 100B, Statistics 100C
- Statistics 110A, Statistics 110B

You may not take a mathematics course for credit if you have credit for a more advanced course that has the first course as a prerequisite. This applies in particular to the repetition of courses. For example, if you wish to repeat 31B, you must do so before completing Math 32A.

You may not receive credit for both a course and for the honors version of the course (eg, you may not receive credit for both Math 131A and Math 131AH). Math 110A, Math 110B and Math 110AH, Math 10BH (Honors) are a special case. Please see an undergraduate advisor in the mathematics department if you find that you stop in the middle of one of the algebra sequences and want to finish with the other the following year.

If you took Math 3C because you were interested in a life science major, but would like to switch to a physical science major requiring Math 32A, please see a counselor in MS 6356 to discuss your options.

You may not receive credit for:	If you have already taken:
Math 2 or Stats 10	ANY Math # 106-199
Math 170A or Stats 100A or Stats 110A	Electrical Engineering 131A
Math 151A AND Math 151B	Electrical Engineering 103
Math 132	Physics 132
Econ 146	Math 164

MAJORS IN UCLA MATHEMATICS

Mathematics (Pure Math)	This theoretical major is a good choice for students who are interested in pursuing graduate level mathematics. These students are interested in working as professors or researchers at the university level.
Applied Mathematics	Many different companies are interested in hiring applied mathematics graduates, including aerospace, financial companies, computer companies, and other technology-based industries. Students majoring in applied mathematics may also pursue graduate studies.
Mathematics of Computation	Students following this major take computer related mathematics courses and three upper division Computer Science courses, which are generally reserved only for CS majors. They are often hired into positions for CS engineers, but have the flexibility to pursue other computer-related fields. Mathematics of Computation majors have also succeeded in pursuing graduate degrees in Computer Science and Applied Mathematics.
Mathematics for Teaching	Mathematics for Teaching is a major geared toward individuals interested in teaching mathematics at the high school or middle school level. The program aligns with the guidelines established by the state to produce more qualified teachers.
Mathematics/Applied Science (Four plans available)	a) **Individual** – Allows students to combine upper division math with upper division courses from other science areas (i.e. statistics, physics, chemistry, psychology, etc.).* b) **Actuarial** – Provides students with a foundation in mathematics, economics, and finance to prepare for the actuarial field. c) **Medical and Life Sciences** – Prepares students for a career in the medical field while pursuing their interest in mathematics. Several courses overlap with the pre-med requirements. d) **History of Science** – For students intending to go to professional school, (law or business), while pursuing their interest in mathematics
Mathematics/ Economics	This interdepartmental major is great preparation for graduate level Economics and MBA programs. In addition, many business and finance companies find these students very desirable prospective employees.

*Note—This major requires departmental approval and is rarely granted because the Department already offers a wide range of majors.

MATHEMATICS

Preparation for the major (10 courses):

	Quarter	Grade
Math 31A	_____	_____
Math 31B	_____	_____
Math 32A	_____	_____
Math 32B	_____	_____
Math 33A	_____	_____
Math 33B	_____	_____
PIC 10A	_____	_____
Physics 1A	_____	_____

	Quarter	Grade
Two courses from the following:		
Econ 11	_____	_____
Chem 20A	_____	_____
Chem 20B	_____	_____
Physics 1B **or** 6B	_____	_____
Physics 1C **or** 6C	_____	_____
Philos 31	_____	_____
Philos 137	_____	_____
LifeSci 1	_____	_____

The Major (12 courses):

Math 115A	_____	_____
Math 110A	_____	_____
Math 110B	_____	_____
Math 120A	_____	_____
Math 131A	_____	_____
Math 131B	_____	_____
Math 132	_____	_____

Five upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 102C

1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

APPLIED MATHEMATICS

Preparation for the major (10 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	Physics 1A	_____	_____
Math 31B	_____	_____	Physics 1B	_____	_____
Math 32A	_____	_____			
Math 32B	_____	_____	**One** course from the following:		
Math 33A	_____	_____	Physics 1C	_____	_____
Math 33B	_____	_____	Chem 20A	_____	_____
PIC 10A	_____	_____	Chem 20B	_____	_____

The Major (12 courses):

Math 115A	_____	_____
Math 131A	_____	_____
Math 131B or 132	_____	_____
Math 142	_____	_____

Two 2-quarter sequences chosen from three different categories:

A. Applied Numerical Methods:

Math 151A	_____	_____
Math 151B	_____	_____

B. Probability and Statistics:

Math 170A **or** Stats 100A **or** Stats 110A	_____	_____
Math 170B **or** Stats 100B **or** Stats 110B	_____	_____

C. Differential Equations:

Math 134	_____	_____
Math 135	_____	_____

Four upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 102C

1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

MATHEMATICS OF COMPUTATION

Preparation for the major (13 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	PIC 10A	_____	_____
Math 31B	_____	_____	PIC10B	_____	_____
Math 32A	_____	_____	PIC10C or 30	_____	_____
Math 32B	_____	_____			
Math 33A	_____	_____			
Math 33B	_____	_____	**One** course from the following:		
Math 61	_____	_____	Physics 1C	_____	_____
Physics 1A	_____	_____	Chem 20A	_____	_____
Physics 1B	_____	_____	Chem 20B	_____	_____

The Major (14 courses):

Math 115A	_____	_____
Math 131A	_____	_____
Math 131B or 132	_____	_____
Math 151A	_____	_____
Math 151B	_____	_____

Six upper division mathematics courses chosen from: Math 106 - 199, Stats 100A - 102C

1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____

Three upper division Computer Science courses:

1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____

MATHEMATICS FOR TEACHING

Preparation for the major (11 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	Physics 1A **or** 6A	_____	_____
Math 31B	_____	_____	**Two** courses from the following:		
Math 32A	_____	_____	Chem 20A	_____	_____
Math 32B	_____	_____	Chem 20B	_____	_____
Math 33A	_____	_____	Physic 1B **or** 6B	_____	_____
Math 33B	_____	_____	Physic 1C **or** 6C	_____	_____
Math 61	_____	_____	PIC 10BC - 97:		
PIC 10A	_____	_____	_____	_____	_____

The Major (13 courses):

	Quarter	Grade
Math 115A	_____	_____
Math 105A	_____	_____
Math 105B	_____	_____
Math 105C	_____	_____
Math 106	_____	_____
Math 110A **or** 117	_____	_____
Math 120A or 123	_____	_____
Math 131A	_____	_____
Math 170A **or** Stats 100A	_____	_____
Stats 100B	_____	_____

One course chosen from Math 131B - 136: Mathematics Analysis

1. _____ _____ _____ _____

One course chosen from Math 142 - 167: Applied Mathematics

1. _____ _____ _____ _____

One course chosen from Math 110B – 191H or Stats100C: Upper Division Mathematics

1. _____ _____ _____ _____

INDIVIDUAL PLAN

Under the Mathematics/Applied Science major

Preparation for the major (7 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	Math 33A	_____	_____
Math 31B	_____	_____	Math 33B	_____	_____
Math 32A	_____	_____	PIC 10A	_____	_____
Math 32B	_____	_____			

You are also responsible for any prerequisites for the seven upper division courses from the 1-2 related fields.

The Major (14 courses):

a) All seven upper division mathematics courses must be passed with an overall GPA of 2.0.

Seven upper division Mathematics courses from: Math 106 – 199:

Math 115A			_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

One 2-quarter sequences chosen:

6.	_____	_____	_____	_____
7.	_____	_____	_____	_____

Seven upper division courses from 1 - 2 related fields:

a) At least 3 of the 7 courses must be mathematics oriented.
b) At least 5 of the 7 courses from the 1-2 related fields must be taken after the program has been approved.
c) All seven courses from the 1-2 related fields must be passed with an overall GPA of 2.0.

Department: _____				Department: _____			
Course	Title	Quarter	Grade	Course	Title	Quarter	Grade
1._____	_____	_____	_____	1._____	_____	_____	_____
2._____	_____	_____	_____	2._____	_____	_____	_____
3._____	_____	_____	_____	3._____	_____	_____	_____
4._____	_____	_____	_____	4._____	_____	_____	_____
5._____	_____	_____	_____	5._____	_____	_____	_____
6._____	_____	_____	_____	6._____	_____	_____	_____
7._____	_____	_____	_____	7._____	_____	_____	_____

ACTUARIAL PLAN

Under the Mathematics/Applied Science major

Preparation for the major (10 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	PIC 10A	_____	_____
Math 31B	_____	_____	Econ 1	_____	_____
Math 32A	_____	_____	Econ 2	_____	_____
Math 32B	_____	_____	Econ 11	_____	_____
Math 33A	_____	_____			
Math 33B	_____	_____			

The Major (12 courses):

	Quarter	Grade
Math 115A	_____	_____
Math 131A	_____	_____
Math 170A **or** Stats 100A	_____	_____
Math 170B	_____	_____
Math 172A	_____	_____
Math 172B	_____	_____
Math 172C	_____	_____
Math 174	_____	_____

Four upper division Economics and Statistics courses:

Two upper division economics courses chosen from: Econ 141A - 148

1. _____ _____ _____ _____
2. _____ _____ _____ _____

Stats 100B	_____	_____
Stats 100C	_____	_____

MEDICAL & LIFE SCIENCES PLAN

Under the Mathematics/Applied Science major

Preparation for the major (18 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	LifeSci 1	_____	_____
Math 31B	_____	_____	LifeSci 2	_____	_____
Math 32A	_____	_____	LifeSci 3	_____	_____
Math 32B	_____	_____	LifeSci 4	_____	_____
Math 33A	_____	_____	Chem 20A	_____	_____
Math 33B	_____	_____	Chem 20B	_____	_____
PIC 10A	_____	_____	Chem 20L	_____	_____
Physics 1A	_____	_____	Chem 30A	_____	_____
Physics 1B	_____	_____	Chem 30AL	_____	_____

The Major (13courses):

Math 115A	_____	_____
Math 134	_____	_____
Math 151A	_____	_____
Math 170A	_____	_____
Math 170B	_____	_____

Two upper division mathematics courses chosen from: Math 110A - 199, Stats 100B - 101C

1. _____ _____ _____ _____
2. _____ _____ _____ _____

Six upper division outside science courses:

Phy Sci M180A	_____	_____
Phy Sci M180B	_____	_____
Phy Sci M180C	_____	_____

Three course from the following:

Biomath 110	_____	_____	EEB C119	_____	_____
Biomath 160	_____	_____	EEB 133	_____	_____
Biostat 100A	_____	_____	EEB 135	_____	_____
Chem CM160A	_____	_____	Phy Sci 100	_____	_____
ComSci M186B	_____	_____	Phy Sci C135	_____	_____

HISTORY OF SCIENCE PLAN

Under the Mathematics/Applied Science major

Preparation for the major (10 courses):

		Quarter	Grade
Math 31A	Differential and Integral Calculus	_____	_____
Math 31B	Integration and Infinite Series	_____	_____
Math 32A	Calculus of Several Variables	_____	_____
Math 32B	Calculus of Several Variables	_____	_____
Math 33A	Linear Algebra and Applications	_____	_____
Math 33B	Differential Equations	_____	_____
PIC 10A	Introduction to Programming	_____	_____

Three courses from the following:

Hist 2B	Social Knowledge and Social Power	_____	_____
Hist 2D	Science, Magic and Religion	_____	_____
Hist 3A	Scientific Revolution	_____	_____
Hist 3B	History of Science from Newton to Darwin	_____	_____
Hist 3C	History of Modern Science, Relativity to DNA	_____	_____
Hist 3D	Themes in History of Medicine	_____	_____

The Major (14 courses):

Math 106	History of Mathematics	_____	_____
Math 115A	Linear Algebra	_____	_____
Math 131A	Analysis	_____	_____
Math 135A	Ordinary Differential Equations	_____	_____
Math 170A	Probability Theory	_____	_____

Three upper division mathematics courses chosen from: Math 110A - 199

1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____

Six upper division History, Philosophy or Physical Science/Neurobiology courses:

Five upper division history, philosophy or physical science/neurobiology courses from the following:

Hist 179A	History of Medicine: Historic roots of Healing Arts	_____	_____
Hist 179B	History of Medicine: Foundations of Modern Medicine	_____	_____
Hist M180B	Historic Perspectives on Gender and Science	_____	_____
Hist 180A	Topics in History of Science	_____	_____
Hist 180C	Science and Technology in the 20th Century	_____	_____
Philos 124	Philosophy of Science: Historical	_____	_____
PhySci/Nuerbio M168	Ideas and Experiments in History of Physiology	_____	_____

Any Honors Collegium with "history of science" or "history of medicine content:

1.	_____	_____	_____	_____

MATHEMATICS/ECONOMICS

Preparation for the major (10 courses):

	Quarter	Grade		Quarter	Grade
Math 31A	_____	_____	Math 61	_____	_____
Math 31B	_____	_____	PIC 10A	_____	_____
Math 32A	_____	_____	Econ 1	_____	_____
Math 32B	_____	_____	Econ 2	_____	_____
Math 33A	_____	_____	Econ 11	_____	_____
Math 33B	_____	_____			

The Major (13 courses):

	Quarter	Grade
Math 115A	_____	_____
Math 131A	_____	_____
Math 170A **or** Stats 100A	_____	_____
Math 170B **or** Stats 100B	_____	_____

Two upper division mathematics courses chosen from: Math 110A **or** 117, Math 164, Math 167, Math 174*

1. _____ _____ _____ _____
2. _____ _____ _____ _____

One additional upper division mathematics course chosen from: Math 110B - 199, Stats 100C, Stats 101BC

1. _____ _____ _____ _____

Six upper division Economics courses:

Econ 101	_____	_____
Econ 102	_____	_____

Three upper division economics courses chosen from: Econ 103, Econ 141A - 148, Math 174*

1. _____ _____ _____ _____
2. _____ _____ _____ _____
3. _____ _____ _____ _____

One additional upper division economics course chosen from: Econ 103 - 199B

1. _____ _____ _____ _____

*Math 174 may only be used in one category.

SPECIALIZATION IN COMPUTING

The Specialization in Computing is not a major, but a supplement to the Mathematics, Applied Mathematics, Mathematics for Teaching, Mathematics/Economics and Mathematics/Applied Science majors. It provides an extensive education in elementary computer science and an introduction to its applications in mathematics. Students who complete the specialization will receive a notation on their diploma. Mathematics/Economics majors interested in a Specialization in Computing must follow the Specialization offered through the Mathematics Department.

- Each PIC course, Math 61 or 180, and at least two courses from Math 149-159 must be passed with a minimum grade of C- and an overall combined GPA of 2.0.
- Students planning to complete the Specialization in Computing must petition to add this program to their major after completing PIC 10B. Petitions should be filed in the Student Services Office, MS 6356.
- Students who have added the Specialization in Computing to their major and choose to graduate before completing the specialization must officially drop the program by filing a petition in MS 6356.

Required for the specialization (7 courses):

	Quarter	Grade
PIC 10A	_____	_____
PIC 10B	_____	_____

Two PIC course from the following:

PIC 10C	_____	_____
PIC 15	_____	_____
PIC 20A	_____	_____
PIC 20B	_____	_____
PIC 30	_____	_____
PIC 40A	_____	_____
PIC 40B	_____	_____
PIC 60	_____	_____

One mathematics course from the following:

Math 61	_____	_____
Math 180	_____	_____

Two upper division mathematics courses chosen from: Math 149 - 159

			Quarter	Grade
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____

MINOR IN MATHEMATICS

Required for the minor (8 courses):

	Quarter	Grade
Math 32A	_____	_____
Math 33A	_____	_____
Math 33B	_____	_____

Five upper division mathematics courses chosen from: Math 106 – 199

			Quarter	Grade
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____

- The minor in mathematics is designed to provide students with the opportunity to widen their background and general comprehension of the role of mathematics in various disciplines.
- All courses must be completed with a letter grade and passed with an overall GPA of at least 2.0.

Math 32B is not required for the minor. Please be aware of any upper division mathematics courses for which Math 32B is a prerequisite.

CAREER OPPORTUNITIES

Graduating with a major in Mathematics from UCLA will give you the critical thinking skills that employers are looking for. Mathematics opens the door to unlimited opportunities, if you are willing to make the effort to invest the time necessary to perform well. Our students have been employed by a diverse selection of companies in varying capacities.

In today's competitive world, a good education is essential. With a strong background in mathematics and logic you give yourself the best advantage for **ANY** career you choose.

Some of the careers our students have enjoyed:

- Computer Programmer
- Financial Analyst
- Actuary
- Buyer
- Programmer Analyst
- High School Teacher
- Navy Pilot
- Management Consultant
- Cost Analyst
- Financial Planner
- Auditor
- Technical Advisor
- Accountant
- And many, many more

For more information about career opportunities please visit the Career Center online at:

http://career.ucla.edu

GRADUATE SCHOOL OPPORTUNITIES

Successful graduate work in mathematics requires skills in formal reasoning and in constructing rigorous mathematical proofs. These skills are more essential for success at the graduate level than is knowledge of any particular topic. The honors sequences will provide training in these skills to a far greater degree than the regular sequences. In fact, our graduate admissions committee looks more favorably upon an A- earned in an honors sequence than on an A in the regular sequence. It is likely that other graduate programs follow similar policies.

Most applications for graduate programs in mathematics must be submitted between December and February so it is best to contact colleges during the summer or access their websites for online applications and additional information.

Recommended courses to prepare for graduate school:

For Pure Mathematics:

- Math 131AB (Honors) + 131C
- Math 110AB (Honors) + 110C
- Math 132
- Math 120A, 121
- Math 134, 135 and 136

For Applied Mathematics:

- Math 131AB (Honors)
- Math 110A or 117
- Math 134, 135 and 136
- Math 151AB, 153
- Math 132

Most universities will require the following materials with their applications:

1) Three letters of recommendation

2) GRE general and mathematics subject exams

3) Personal statement

For a more information on applying to graduate school and timelines, please meet with the math advisor.

For information about applying to medical school or other professional schools you may also visit the UCLA Career Center online at:
http://www.career.ucla.edu

RESEARCH OPPORTUNITIES

IPAM Research in Industrial Projects for Students ("RIPS")

http://www.ipam.ucla.edu/programs/rips2003/

Research in Industrial Projects for Students (RIPS) is based on the successful Math Clinic concept that originated at Harvey Mudd College in 1973 as well as the Research Experience for Undergraduates (REU) program sponsored by the National Science Foundation. In the RIPS program, teams of students, directed by faculty advisors, work to solve industry-related problems. RIPS brings together highly qualified undergraduates in mathematics or related majors with sponsoring industry, government, and nonprofit organizations to collaborate on projects. Each team of three to four advanced students spends two summer months working on a problem posed by the sponsoring organization under the leadership of a faculty advisor. Projects focus on problems of serious interest to the sponsor and stimulating challenges to the students. Participation in RIPS provides valuable real-world technical and managerial experience for students and valuable R&D for the sponsor.

NSF REU Program

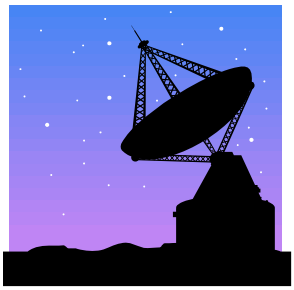
http://www.nsf.gov/crssprgm/reu/list_result.cfm?unitid=5044

The REU program includes both individual research and group activities. Each student is assisted by a faculty advisor and some also by a graduate-student advisor. Group activities include seminars and other social and professional events. Students are encouraged to continue their research during the following academic year, under the direction of their summer mentor or another faculty member. Eligible students will receive a stipend and on-campus housing for their work. Visit the website above for important details.

URC CARE

http://college.ucla.edu/urc-care/

The Undergraduate Research Center for Sciences, Engineering and Mathematics and the Center for Academic and Research Excellence work collaboratively to serve UCLA's undergraduate science population. Through various programs the URC/CARE recruits, develops, and celebrates students involved in research. Our mission is to support and increase the retention of science majors in all disciplines, with some programs focused on students who face economic, familial, educational, social or other challenges. Their office is located in 2121 Life Science Building.



NASA Undergraduate Student Research Program

http://www.epo.usra.edu/usrp/

The NASA USRP offers undergraduates across the United States mentored research experiences at the NASA centers. Two sessions are typically offered. They consist of a 10-week session in the summer and a 15-week session in the fall. The project seeks applications from undergraduates who are U.S. citizens enrolled full-time in accredited U.S. colleges or universities Applicants must be rising juniors or seniors at the completion of the current year's spring semester or quarter. Eligible applicants must have academic majors or course concentration in engineering, mathematics, computer science, or physical and life sciences.

STUDENT ORGANIZATIONS

UCLA ACTUARIAL CLUB

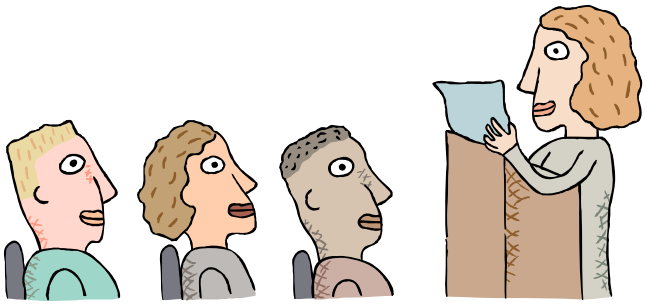
The UCLA Actuarial Club is designed for those students interested in the actuarial profession. During the last year, weekly e-mails were sent out to club members regarding company information sessions, internships, jobs, and scholarships.

To join please email the Actuarial Club at: uclaactuarialclub@hotmail.com or check out the website at www.math.ucla.edu/undergrad/~actuary .

UCLA PI MU EPSILON

Pi Mu Epsilon, Inc (PME), is the Honorary National Mathematics Society. Their purpose is "to promote scholarly activities in mathematics among students, awareness of higher educational programs and career opportunities in mathematics, as well as social activities among its members." Our current and future chapter projects include arranging popular talks on mathematical topics, a weekly problem-solving group, on-campus and off-campus community involvement (i.e. setting up high school competitions), and social activities.

For information please email PMEinLA@gmail.com



UNDERGRADUATE MATHEMATICS STUDENTS' ASSOCIATION

The UCLA Undergraduate Mathematics Students' Association (UMSA) is an officially recognized university club for mathematics majors and students of other majors who are interested in mathematics. UMSA was established in response to students' desire to have a "connection" to the Mathematics Department. The purpose of UMSA is to:

- Promote the academic awareness of the mathematics major.
- Promote better student-faculty relations.
- Provide information on career opportunities in mathematics.
- Provide a peer network in which students can discuss and further develop ideas and concepts that are presented in mathematics courses.

www.math.ucla.edu/umsa

email: umsa@math.ucla.edu

TEACHING PREPARATION PROGRAMS

Do you love mathematics? Do you like to explain mathematics concepts to others?

Imagine getting to develop a deep understanding of the mathematics you've learned and help young students every day of the work week! Teaching is a fun, creative, rewarding and challenging career. It is well paid with salaries starting at ~ $45K and peaking at ~ $94K for ten months work. Further, because a significant portion of secondary mathematics teachers do not have strong mathematics backgrounds, mathematics majors who want to teach mathematics are in high demand. Recent data shows that even if every CA mathematics major graduating next June chose to teach, more than half the state's open secondary mathematics teaching positions would not be filled.

UCLA is one of the top three California universities in the number of graduates who go on to earn a CA mathematics teaching credential. Research shows that over 80% of UCLA mathematics graduates who go on to complete their teaching credential in the UCLA Teacher Education Program remain in teaching after 5 years. This is a stark contrast to the Los Angeles Unified School District average of 62%! In addition, evidence demonstrates that a significant fraction of UCLA Mathematics Department teacher preparation program graduates become mathematics teacher-leaders, increasing their impact on the mathematics education of local communities.

We encourage you to participate in our programs. We offer solid preparation for a career in teaching, a strong foundation for future leadership in the field, a cohort of colleagues to support you in the classroom, and dependent on funding, financial support toward your goals.

For general questions about UCLA Teaching Preparation Programs, please contact the Undergraduate Advisor.

For additional questions or general inquiries about a career in teaching mathematics, please feel free to contact the Curtis Center Executive Director, Heather Calahan (calahan@math.ucla.edu).

TEACHING PREPARATION PROGRAMS

UCLA CalTeach - Math

UCLA California Teach - Math offers up to four years of courses, field experiences, credential preparation, and professional networking opportunities for undergraduates interested in mathematics teaching. In the program, mathematics professors, mathematics educators, and current mathematics teachers will work with you to provide you with the content and pedagogical content knowledge necessary to be a high quality mathematics teacher. Each year of the program includes mathematics courses, mathematics education courses, observation and participation in local schools, and credential preparation. Students may enroll in anywhere from one to all four years of the program, and those who complete all four years are thoroughly prepared for admission to a California (CA) credential program. For more information and to apply, see http://www.curtiscenter.math.ucla.edu/undergraduate.html.

The Joint Mathematics Education Program

The Joint Math/Ed Program (JMEP) is a collaborative effort of the UCLA Mathematics Department and the Graduate School of Education's Teacher Education Program. In this program, students begin work toward a California Preliminary Single Subject Teaching Credential in Mathematics and a Master of Education degree during their senior year, and complete this coursework by the end of the academic year immediately following completion of their bachelor's degree. The program enables students to earn a full time salary (about $40,000) while teaching full time in Los Angeles urban schools during the academic year immediately following their bachelor's degree. Students accepted to the Joint Mathematics Education Program are automatically enrolled in the CalTeach - Math Senior Year. For more information and to apply, see http://www.curtiscenter.math.ucla.edu/undergraduate.html.

Subject Matter Preparation for the CA Teaching Credential

Applicants for a California Preliminary Single Subject Teaching Credential in Mathematics must verify their "subject matter competence" to teach mathematics in one of two ways: 1) complete a CA-approved "subject matter program" and obtain verification of completion from the university with the approved program or 2) achieve a passing score on the three part California Subject Matter Examination for Teachers (CSET).

The UCLA Mathematics Department is one of three UC campuses with a CA-approved "subject matter program" in mathematics. The program is comprised of mathematics courses, most of which are common to most mathematics majors, and the Math 105ABC sequence. Students who complete the department's Mathematics for Teaching major will automatically complete the department's CA-approved subject matter program. At the end of their senior year, students may request a letter from the Curtis Center Executive Director's office verifying their completion of these courses and thus their subject matter competence for the CA Single Subject Teaching Credential in Mathematics. For more information see http://www.curtiscenter.math.ucla.edu/handbook/09-10_Handbook_p10.pdf.

DEPARTMENTAL HONORS & SCHOLARS

The Departmental of Mathematics' Honors and Scholars Programs are two of the most rigorous organizations that are designed to further prepare students for graduate study. While the Departmental Honors Program grants eligible students the opportunity to work closer with faculty and apply their learning to an original project, the Scholars Program allows students with exceptional academic records to simultaneously pursue a Bachelors and Masters degree.

If you are interested in applying or have any questions about either of these programs, please consult with the Undergraduate Mathematics Advisor.

Admission to the Honors Program:

To be considered for admission to the **Honors Program in Mathematics**, **Applied Mathematics, or Mathematics of Computation**, a student must:

- be officially enrolled in his respective Mathematics major;
- have completed at least four courses at UCLA in the Mathematics Department from those required in the "Preparation for the Major" or "Major"; and
- have at least a 3.6 GPA in such mathematics courses taken at UCLA.

To be considered for admission to the **Honors Program in Mathematics/Economics**, a student must:

- be officially enrolled in the Mathematics/Economics major;
- have completed all of the "Preparation for the Major" courses
- have at least a 3.5 GPA in the "Preparation for the Major".

* In addition to the requirements listed above, students must complete specific courses within the department. Please refer to our website at http://www.math.ucla.edu/ugrad/honors.shtml for more detailed information or consult with the Undergraduate Math Advisor.

Eligibility & Timeline for the Scholars Program:

- Completion of at least 96 units
- Completion of all Preparation for the Major courses.
- Completion of entire 30-series courses (31AB, 32AB, 33AB)
- Completion of Math 115AH, 115B, 131AH, and 131BH.

First year at UCLA: Complete or have credit from another institution/standardized test (AP or IB Exams) all lower-division Calculus-based courses (Math 31A, 31B, 32A, 32B, 33A, 33B). If possible take 115AH in spring.

Second year at UCLA: Complete Math 115AH (Honors Linear Algebra), Math 115B (Linear Algebra), Math 131AH (Honors Analysis) and 131BH (Honors Analysis). Completion of these courses will provide a strong foundation for the Basic Qualifying Exam, which is a crucial component of completing the Scholars program. Students are encouraged to apply to the Departmental Scholar program upon completion of 115B and 131BH.

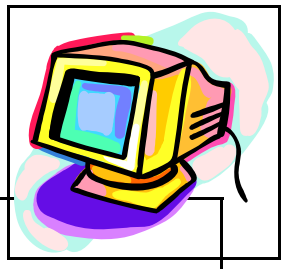
Third Year at UCLA: Pass the Basic Qualifying Exam. Complete other major courses, these particular courses will depend on whether the student is pure or applied. Students can also begin their graduate courses as well.

Fourth year at UCLA: Complete remaining graduate level courses for the Masters Degree.

*http://www.math.ucla.edu/ugrad/scholpr.shtml

PROGRAM IN COMPUTING (PIC) LAB

The PIC Lab supports both PIC students learning programming and Math students who wish to use analytical software. The lab is reserved for PIC and Math students ONLY. Accounts should be automatically created for all eligible students each quarter or can be requested at the Student Services Office in MS 6356. Student accounts have 25 MB of disk space on the network drive and may print 200 pages per class per quarter at no charge.



LOCATION: 2817 Boelter Hall (Main PIC Lab)

HOURS*:

Fall, Winter and Spring Quarters:

Mon-Thurs	9am - 6pm
Fri	9am - 5pm
Sun	1pm - 5pm

Summer Sessions:

Mon - Thurs	9am - 5pm
Fri, Sat, Sun	Closed

*** Hours may vary each quarter. See webpage for actual hours each quarter. Reduced hours during finals.**

WEBSITE: http://www.pic.ucla.edu/piclab/
CONTACT: (310) 825-7267

QUARTER COURSE PLANNER

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00					
9:00					
10:00					
11:00					
12:00					
1:00					
2:00					
3:00					
4:00					
5:00					
6:00					

ACADEMIC PLANNER

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer

Fall	Winter	Spring	Summer